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Biology

Time Remaining: 44/45 (Minutes)

Q.1

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

Which of the following statements about photosynthesis is wrong?

- (a) Carbon dioxide molecules are bound into carbohydrates during the second half of the process
- (b) It is a catabolic process that releases the energy stored in glucose molecules
- (c) Oxygen is released as a waste product
- (d) May occur in both prokaryotic and eukaryotic cells

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Correct Answer:

☐ A ☐ B ☐ C ☐ D

Next



Time Remaining: 44/45 (Minutes)

Q.2

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

How does photosynthesis occur?

- (a) Glucose is broken down into carbon dioxide using the energy of the sun
- (b) The products of the light reaction are used to create glucose from carbon dioxide
- (c) The sunlight directly powers ATP synthase, which catalyzes the creation of glucose
- (d) The electrons from metals are used for chemiosmosis

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Correct Answer:

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**Time Remaining: 44/45 (Minutes)****Q.3****Test 2 Unit 2 Bioenergetics A****Biology Unit Wise****NADPH and ATP, formed during light reaction of photosynthesis have:**

- (a) Assimilating & reducing power respectively
- (b) Reducing & assimilating power respectively
- (c) Oxidizing & reducing power respectively
- (d) Reducing & oxidizing power respectively

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**Time Remaining: 44/45 (Minutes)****Q.4****Test 2 Unit 2 Bioenergetics A****Biology Unit Wise****What is wrong about dark reaction of photosynthesis?**

- (a) It only takes place in dark
- (b) It utilizes the light directly
- (c) It is independent from light reaction
- (d) All of these

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Time Remaining: 44/45 (Minutes)

Q.5

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

CO₂ and water during photosynthesis:

- (a) React with each other
- (b) Show their action at same time
- (c) Is reduced and oxidized, respectively
- (d) None of these

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Correct Answer:



A



B



C



D

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Time Remaining: 44/45 (Minutes)

Q.6

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

Photolysis is the splitting of water in the presence of:

- (a) Light (b) Enzymes
(c) Oxygen (d) Both 'a' & 'b'

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Correct Answer:

- ☒ A ☐ B ☐ C ☐ D

Next

Back



Time Remaining: 43/45 (Minutes)

Q.7

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

Dark reaction of photosynthesis is also called as:

- (a) C4 cycle
- (b) Light dependent reaction
- (c) Calvin cycle
- (d) All of these

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Correct Answer:



A



B



C



D

Next

Back



Time Remaining: 43/45 (Minutes)

Q.8

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

Unidirectional flow of e^- in non-cyclic photophosphorylation is:

- (a) $\text{PS II} \xrightarrow{e^-} \text{PS I} \xrightarrow{e^-} \text{NADP} \xrightarrow{e^-} \text{water}$
- (b) $\text{Water} \xrightarrow{e^-} \text{PSII} \xrightarrow{e^-} \text{PS I} \xrightarrow{e^-} \text{NADP}$
- (c) $\text{PS I} \xrightarrow{e^-} \text{NADP} \xrightarrow{e^-} \text{water} \xrightarrow{e^-} \text{PS II}$
- (d) $\text{Water} \xrightarrow{e^-} \text{PS I} \xrightarrow{e^-} \text{PS II} \xrightarrow{e^-} \text{NADP}$

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Correct Answer:

- ☒ A ☐ B ☐ C ☐ D

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**Time Remaining: 43/45 (Minutes)****Q.9****Test 2 Unit 2 Bioenergetics A****Biology Unit Wise**

The head and tail of chlorophyll are made up of _____ respectively:

- (a) Pyrrole & Tetrapyrrole
- (b) Porphyrin & Phytin
- (c) Porphyrin & Phytol
- (d) Tetrapyrrole & Magnesium

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**Time Remaining: 43/45 (Minutes)****Q.10****Test 2 Unit 2 Bioenergetics A****Biology Unit Wise****Which of the following connect the primary and secondary processes of photosynthesis?**(a) NADPH_2

(c) ATP

(b) ATP & NADPH

(d) Ferridoxins

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Time Remaining: 43/45 (Minutes)

Q.11

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

In non-cyclic photophosphorylation, the electron emitted by P_{680} is replaced by electron from:

- (a) NADP (b) Water
(c) Ferredoxin (d) Chlorophyll-a

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Correct Answer:

- ☒ A ☐ B ☐ C ☐ D

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Time Remaining: 43/45 (Minutes)

Q.12

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

Which of the following molecules are formed in the Calvin cycle while using ATP?

- (a) 1,3-bisphosphoglycerate and Ribulose biphosphate
- (b) Ribulose biphosphate and Glyceraldehyde-3-phosphate
- (c) 3-phosphoglycerate and Ribulose biphosphate
- (d) Glyceraldehyde3-phosphate and Glucose

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Correct Answer:

☒ A ☐ B ☐ C ☐ D

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**Time Remaining: 43/45 (Minutes)****Q.13****Test 2 Unit 2 Bioenergetics A****Biology Unit Wise****Which of the following statements is true for the Calvin cycle?**

- (a) It does not depend on sunlight to operate
- (b) It is fueled by glucose
- (c) Carbon dioxide is converted into water and oxygen
- (d) It occurs in the nucleus of a cell

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Time Remaining: 43/45 (Minutes)**Q.14****Test 2 Unit 2 Bioenergetics A****Biology Unit Wise**

In the Calvin cycle, what is the first product formed after the entry of carbon dioxide?

- (a) Glucose
- (b) Ribulose-1,5-bisphosphate
- (c) 3-Phosphoglycerate
- (d) Glyceraldehyde-3-phosphate

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Time Remaining: 43/45 (Minutes)

Q.15

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

In the Calvin cycle, which molecule combines with carbon dioxide?

- (a) Glucose
- (b) 3-phosphoglycerate
- (c) Glyceraldehyde3-phosphate
- (d) Ribulose-1,5-bisphosphate

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Correct Answer:

☒ A ☐ B ☐ C ☐ D

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Time Remaining: 42/45 (Minutes)

Q.16

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

Arrange the two following lists into their most appropriate pairs:

Column I	Column II
A - Antennae pigment molecules	I - Dioxygen (O ₂) generation
B - Thylakoid membrane	II - Reduction of ferredoxin
C - Photosystem II	III - Electron transport chain
D - Photosystem I	IV - Absorption of light

(a) A-I, B-II, C-III, D-IV (b) A-IV, B-III, C-I, D-II

(c) A-IV, B-III, C-II, D-I (d) A-II, B-IV, C-I, D-II

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Correct Answer:



A



B



C



D

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**Time Remaining: 42/45 (Minutes)****Q.17****Test 2 Unit 2 Bioenergetics A****Biology Unit Wise****Both photosynthesis and respiration require:**

- (a) Chloroplasts (b) Sunlight
(c) Mitochondria (d) Cytochromes

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Time Remaining: 42/45 (Minutes)

Q.18

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

Which one of the following is not true about the light reactions of photosynthesis?

- (a) NADPH is not produced in cyclic electrons transport in light reactions.
- (b) The flow of electrons from water to NADP in non-cyclic electron transport produces one ATP
- (c) Reactions of the two photosystems are needed for the reduction of NADP
- (d) P_{680} and P_{700} are the reaction centers of PS I and PS II respectively reactions

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Correct Answer:



A



B



C



D

Next

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Time Remaining: 42/45 (Minutes)

Q.19

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

The pathway that will produce oxygen during photosynthesis is:

- (a) Krebs cycle
- (b) Non-cyclic electron flow
- (c) Light-independent reactions
- (d) Cyclic electron flow

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Correct Answer:



A



B



C



D

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**Time Remaining: 42/45 (Minutes)****Q.20****Test 2 Unit 2 Bioenergetics A****Biology Unit Wise****Calvin cycle consists of how many phases?**

(a) 1

(b) 2

(c) 3

(d) 4

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**Time Remaining: 42/45 (Minutes)****Q.21****Test 2 Unit 2 Bioenergetics A****Biology Unit Wise****3-Phosphoglycerate is formed during _____ phase of C3 cycle:**

- (a) Preparatory
(c) Reduction

- (b) Oxidative
(d) Carbon fixation

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**Time Remaining: 42/45 (Minutes)****Q.22****Test 2 Unit 2 Bioenergetics A****Biology Unit Wise****Where does the Calvin Cycle occur?**

- (a) Thylakoid
(c) Lumen

- (b) Stroma
(d) Mitochondria

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- ☒ A ☐ B ☐ C ☐ D

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**Time Remaining: 42/45 (Minutes)****Q.23****Test 2 Unit 2 Bioenergetics A****Biology Unit Wise****Which of the following is not a reactant of the Calvin Cycle?**

(a) NADPH

(b) ATP

(c) Oxygen

(d) Carbon dioxide

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Time Remaining: 41/45 (Minutes)

Q.24

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

When carbon first enters the Calvin cycle, what molecule does it combine with?

(a) 3PG

(c) RuBP

(b) G₃P

(d) ATP

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Correct Answer:



A



B



C



D

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**Time Remaining: 41/45 (Minutes)****Q.25****Test 2 Unit 2 Bioenergetics A****Biology Unit Wise****Calvin cycle is involved in the:**

- (a) Synthesis of carbohydrates
- (b) Synthesis of NADPH
- (c) Synthesis of ATP
- (d) Hydrolysis of water

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Time Remaining: 41/45 (Minutes)

Q.26

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

How many molecules of 3-phosphoglycerate is synthesized from the reaction between 6CO_2 and 6RuBp ?

(a) 3

(b) 6

(c) 12

(d) 18

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Correct Answer:



A



B



C



D

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Time Remaining: 41/45 (Minutes)

Q.27

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

How many ATP and NADPH molecules are used in the reduction phase to convert 3-phosphoglycerate to glyceraldehyde-3-phosphate?

- (a) 6 ATP & 6 NADPH (b) 6 ATP only
(c) 12 ATP & 12 NADPH (d) 12 NADPH only

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Correct Answer:

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**Time Remaining: 41/45 (Minutes)****Q.28****Test 2 Unit 2 Bioenergetics A****Biology Unit Wise****How many glyceraldehyde-3-phosphates are required to synthesize one glucose molecule?**

(a) 2

(b) 3

(c) 6

(d) 12

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Time Remaining: 41/45 (Minutes)

Q.29

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

C₃ cycle involves all the steps except:

- (a) Reduction
- (b) Carbon fixation
- (c) ATP synthesis
- (d) Regeneration of RuBP

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Correct Answer:



A



B



C



D

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**Time Remaining: 41/45 (Minutes)****Q.30****Test 2 Unit 2 Bioenergetics A****Biology Unit Wise****How many ATP and NADPH are used for the regeneration of 6RuBp molecules?**

- (a) 12ATP and 6NADPH
- (b) 12ATP only
- (c) 6ATP and 6NADPH
- (d) 6ATP only

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**Time Remaining: 41/45 (Minutes)****Q.31****Test 2 Unit 2 Bioenergetics A****Biology Unit Wise****The initial CO₂ acceptor in C3 cycle is:**

- (a) 3-Phosphoglycerate (b) RuBP
(c) Rubisco (d) G₃P

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Time Remaining: 41/45 (Minutes)

Q.32

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

The unstable 6-carbon compound in Calvin cycle breaks down into:

- (a) Two 3-carbon compounds
- (b) Three 2-carbon compounds
- (c) Six 1-carbon compounds
- (d) Six 3-carbon compounds

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Correct Answer:



A



B



C



D

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**Time Remaining: 41/45 (Minutes)****Q.33****Test 2 Unit 2 Bioenergetics A****Biology Unit Wise****ATPs produced in each Calvin cycle are:**

(a) 0

(c) 3

(b) 1

(d) 6

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Time Remaining: 40/45 (Minutes)

Q.34

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

For the formation on one ATP and one NADPH, the Z-scheme will run:

(a) 1-time

(b) 2 times

(c) 3 times

(d) 6 six times

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Correct Answer:



A



B



C



D

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**Time Remaining: 40/45 (Minutes)****Q.35****Test 2 Unit 2 Bioenergetics A****Biology Unit Wise****Choose the wrong statement:**

- (a) PS-I involves in light reactions first and PS-II involves later on
- (b) PS-I absorbs photons
- (c) Oxygen is not liberated in PS-I
- (d) All the statements are wrong

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Time Remaining: 40/45 (Minutes)

Q.36

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

How many G_3P molecules are yielded during one Calvin cycle?

(a) 1

(c) 5

(b) 2

(d) 6

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Correct Answer:



A



B



C



D

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**Time Remaining: 40/45 (Minutes)****Q.37****Test 2 Unit 2 Bioenergetics A****Biology Unit Wise****How many CO₂ molecules are yielded during one Calvin cycle?**

(a) 0

(c) 3

(b) 1

(d) 6

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Time Remaining: 40/45 (Minutes)

Q.38

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

All of the following are involved in both cyclic and non-cyclic photophosphorylation except:

- (a) Plastocyanin
(c) Plastoquinone

- (b) Photosystem I
(d) Ferredoxin

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Correct Answer:

- ☒ A ☐ B ☐ C ☐ D

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Time Remaining: 40/45 (Minutes)

Q.39

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

During chemiosmosis of photosynthesis, the pumping of protons is:

- (a) Across outer membrane of chloroplast
- (b) Across inner membrane of chloroplast
- (c) From stroma to thylakoid lumen
- (d) From thylakoid lumen to stroma

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Correct Answer:



A



B



C



D

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Time Remaining: 39/45 (Minutes)

Q.40

Test 2 Unit 2 Bioenergetics A

Biology Unit Wise

The pathway that will produce oxygen during photosynthesis is:

- (a) Electron transport pathway
- (b) Non-cyclic electron pathway
- (c) Light-independent reactions
- (d) Cyclic electron pathway

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Correct Answer:



A



B



C



D

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Bioenergetics 'A'

UNIT WISE TEST 2 (Unit 2)

By: Prof. M. Umair Bhatti

.....

Which of the following statements about photosynthesis is wrong?

(a) Carbon dioxide molecules are bound into carbohydrates during the second half of the process

(b) It is a catabolic process that releases the energy stored in glucose molecules

(c) Oxygen is released as a waste product

(d) May occur in both prokaryotic and eukaryotic cells



How does photosynthesis occur?

(a) Glucose is broken down into carbon dioxide using the energy of the sun

(b) The products of the light reaction are used to create glucose from carbon dioxide

(c) The sunlight directly powers ATP synthase, which catalyzes the creation of glucose

(d) The electrons from metals are used for chemiosmosis



NADPH and ATP, formed during light reaction of photosynthesis have:

- (a) Assimilating & reducing power respectively
- (b) Reducing & assimilating power respectively**
- (c) Oxidizing & reducing power respectively
- (d) Reducing & oxidizing power respectively

What is wrong about dark reaction of photosynthesis?

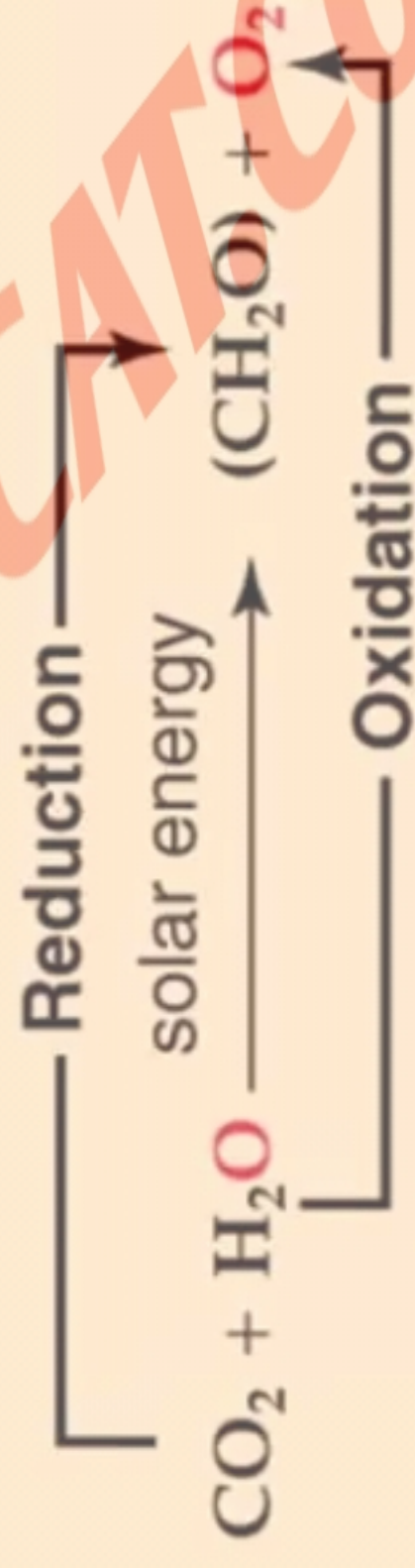
- (a) It only takes place in dark
- (b) It utilizes the light directly
- (c) It is independent from light reaction

(d) All of these



CO₂ and water during photosynthesis:

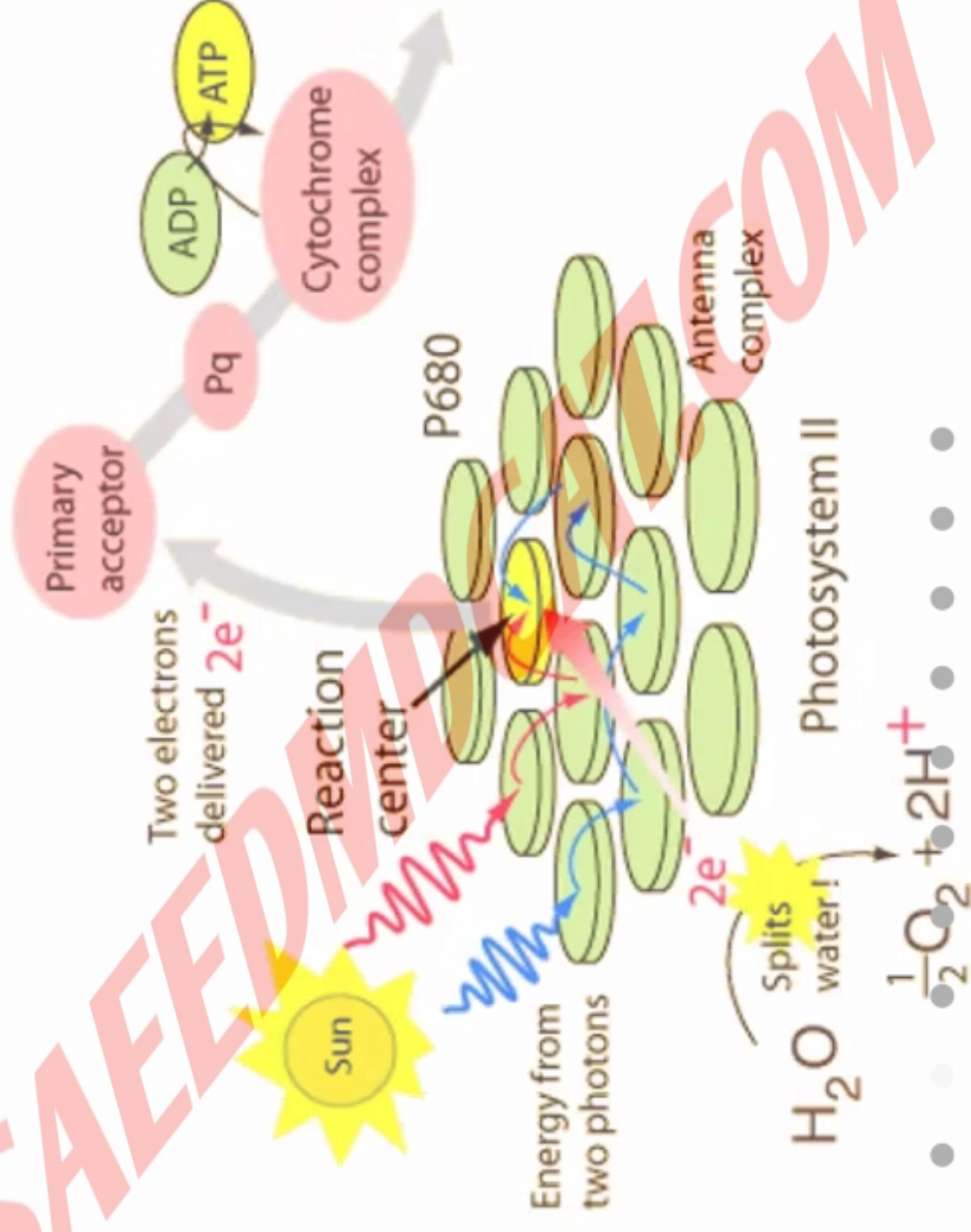
- (a) React with each other
- (b) Show their action at same time
- (c) Is reduced and oxidized, respectively**
- (d) None of these



Photolysis is the splitting of water in the presence of:

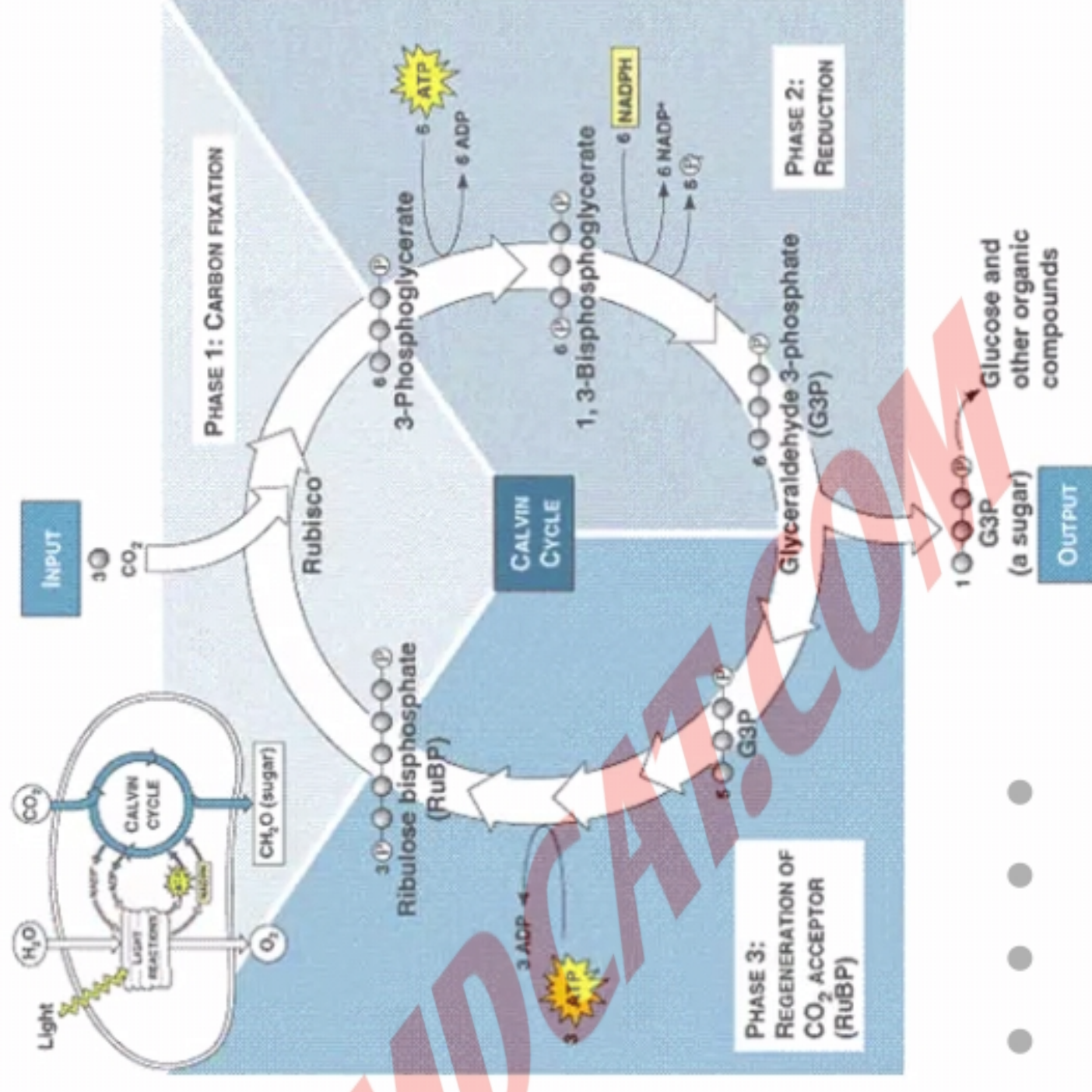
- (a) Light
- (b) Enzymes
- (c) Oxygen

(d) Both 'a' & 'b'

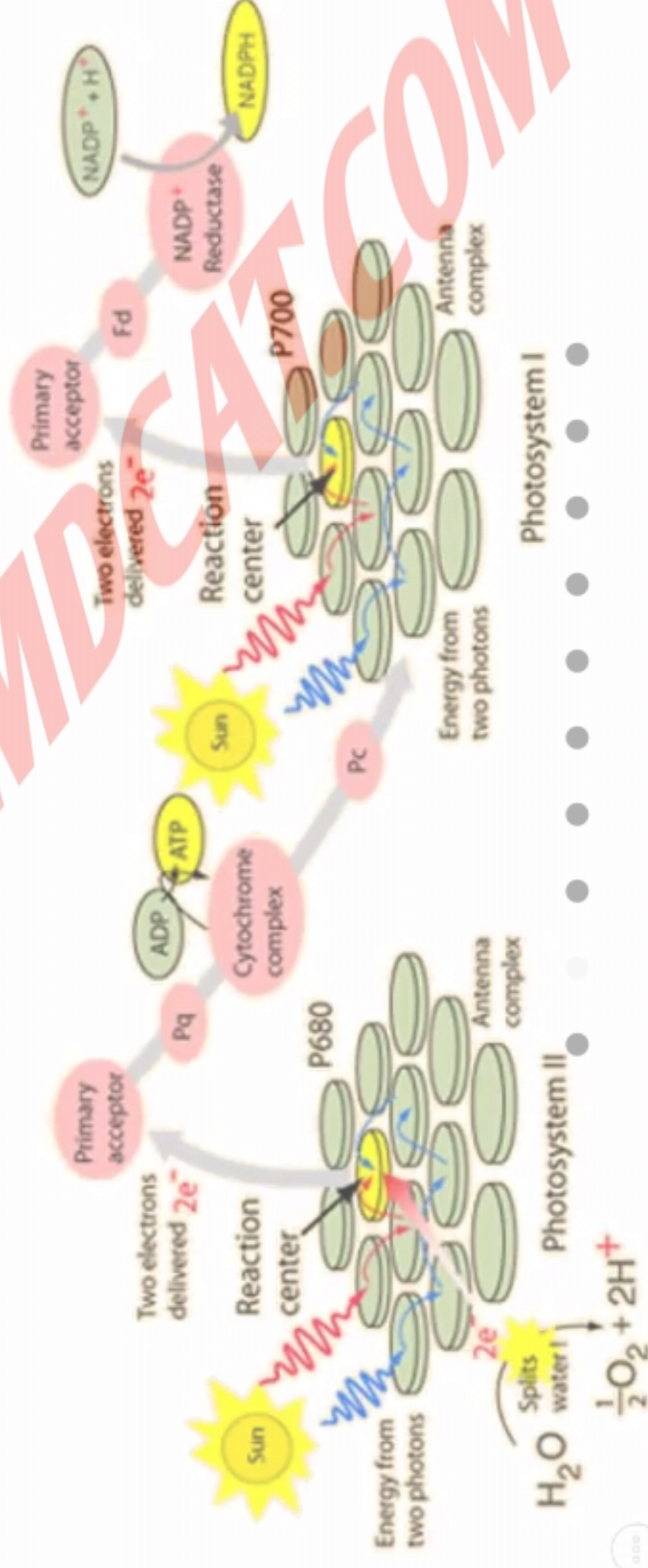
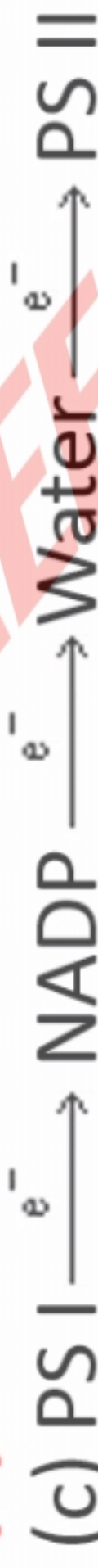


Dark reaction of photosynthesis is also called as:

- (a) C_4 cycle
- (b) Light dependent reaction
- (c) Calvin cycle**
- (d) All of these

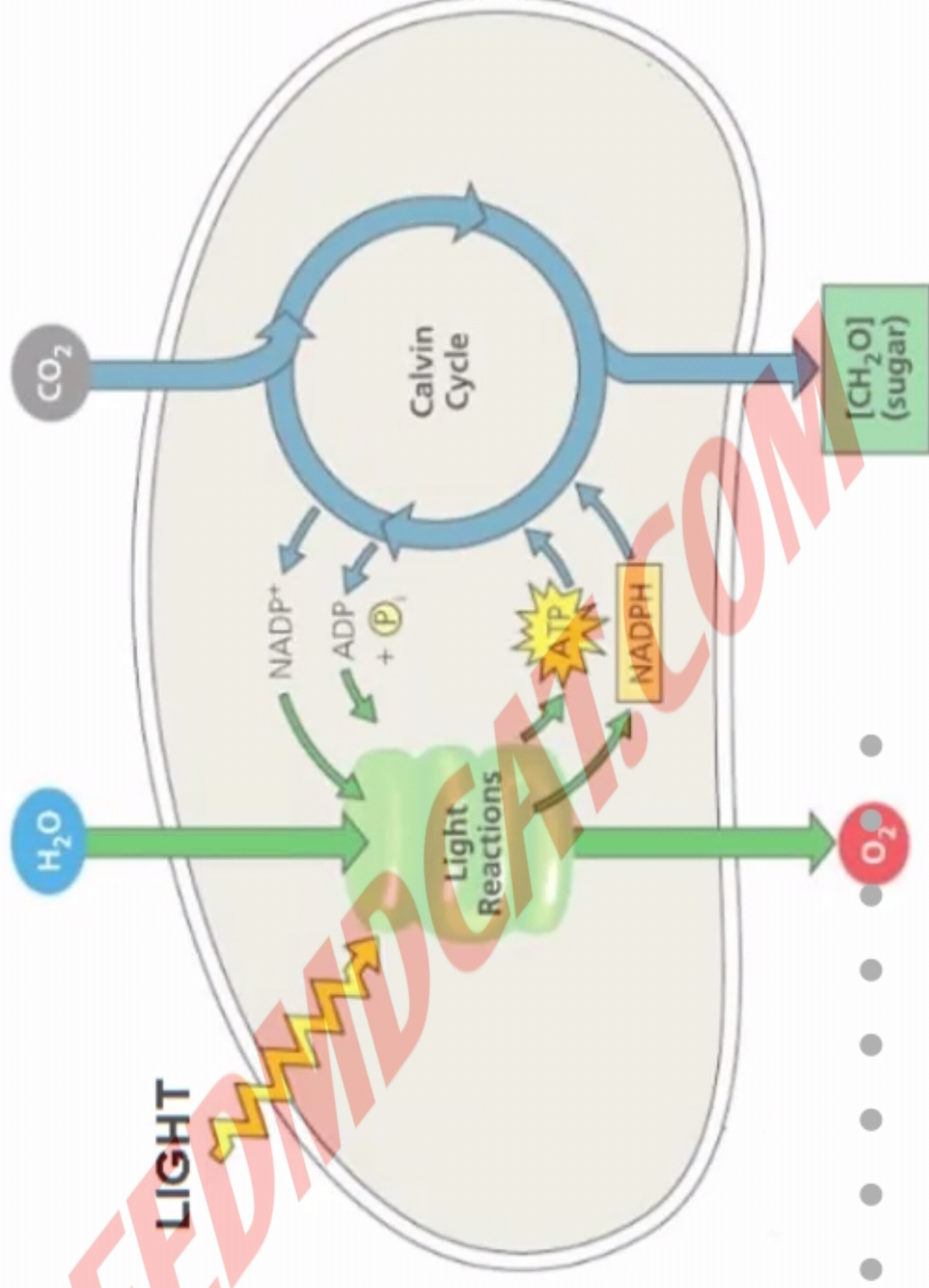


Unidirectional flow of e^- in non-cyclic photophosphorylation is:



Which of the following connect the primary and secondary processes of photosynthesis?

- (a) NADPH_2
- (b) ATP & NADPH**
- (c) ATP
- (d) Ferredoxins



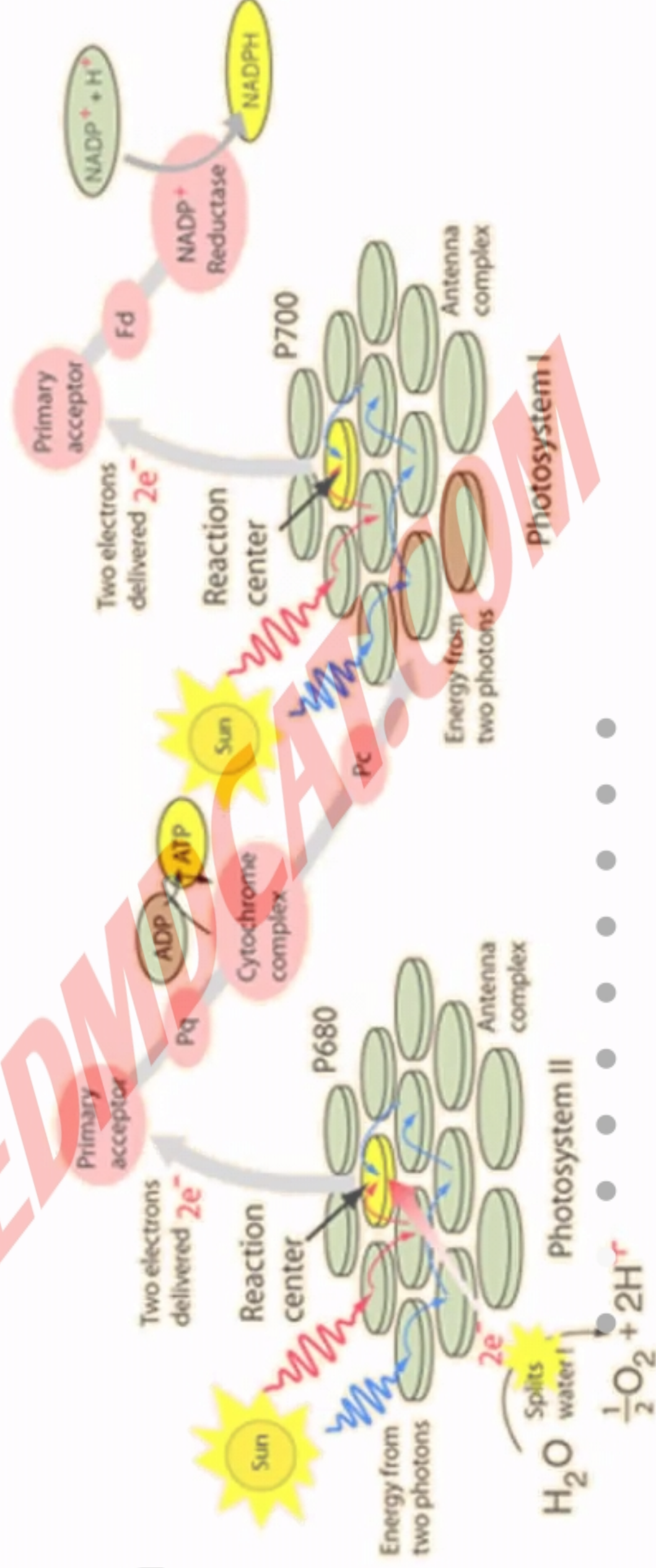
In non-cyclic photophosphorylation, the electron emitted by P_{680} is replaced by electron from:

(a) NADP

(b) Water

(c) Ferredoxin

(d) Chlorophyll-a



Which of the following molecules are formed in the Calvin cycle while using ATP?

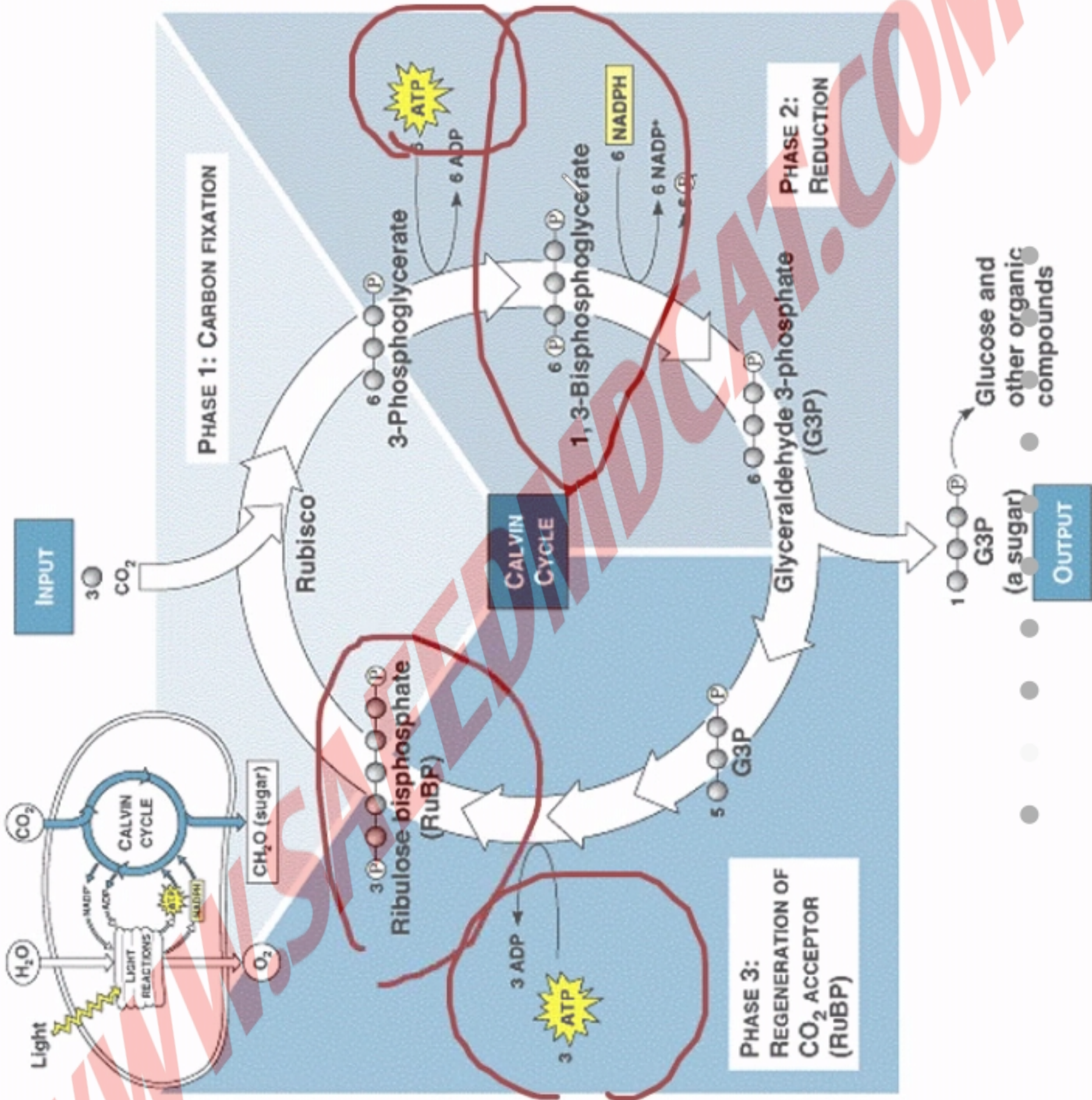
(a) 1,3-bisphosphoglycerate and Ribulose biphosphate

(b) Ribulose bisphosphate and Glyceraldehyde-3-phosphate

(c) 3-phosphoglycerate and Ribulose biphosphate

(d) Glyceraldehyde-3-phosphate and Glucose





Which of the following statements is true for the Calvin cycle?

- (a) **It does not depend on sunlight to operate**
- (b) It is fueled by glucose
- (c) Carbon dioxide is converted into water and oxygen
- (d) It occurs in the nucleus of a cell

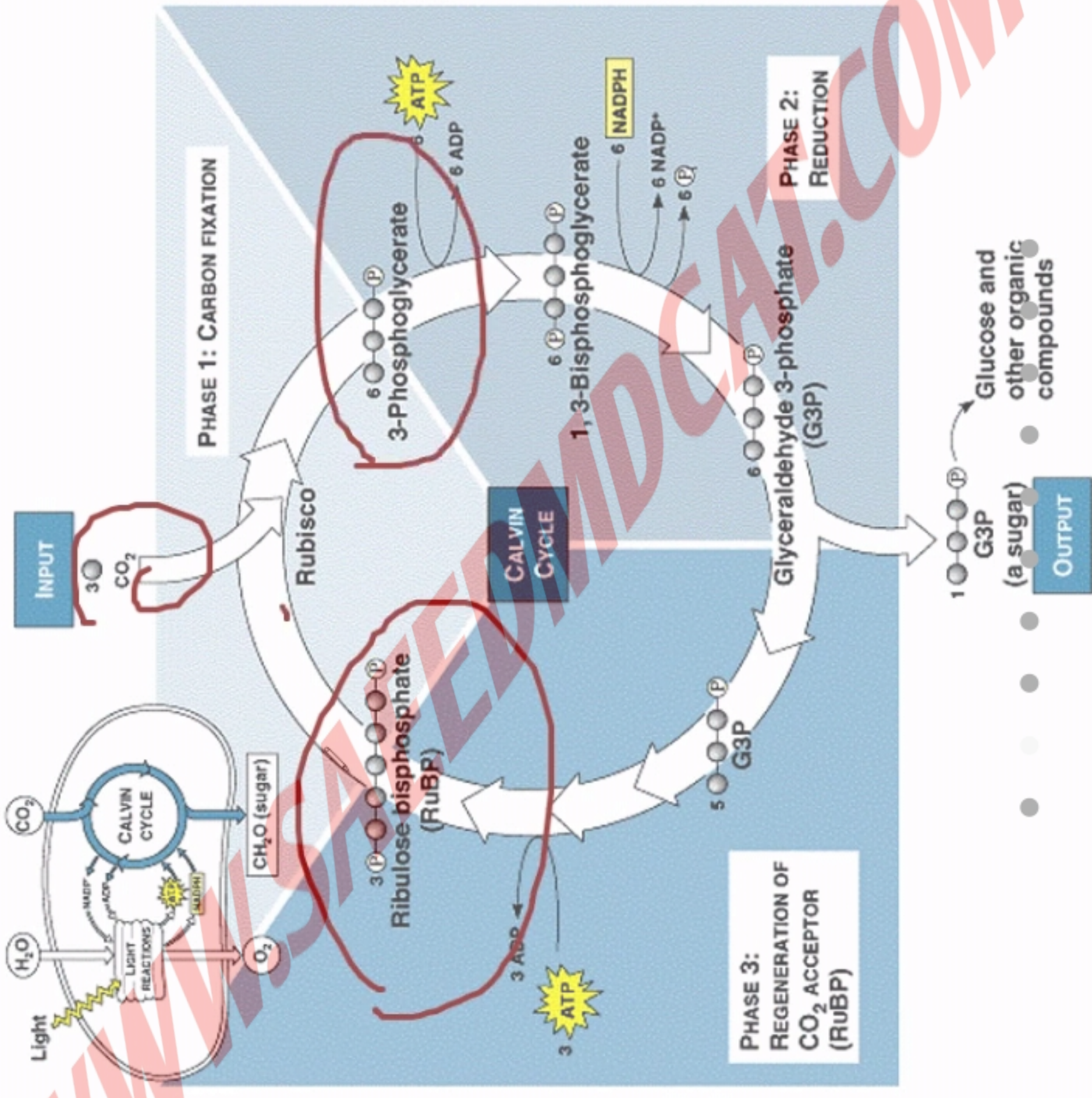
In the Calvin cycle, what is the first product formed after the entry of carbon dioxide?

- (a) Glucose
- (b) Ribulose-1,5-bisphosphate
- (c) 3-Phosphoglycerate**
- (d) Glyceraldehyde-3-phosphate



In the Calvin cycle, which molecule combines with carbon dioxide?

- (a) Glucose
- (b) 3-phosphoglycerate
- (c) Glyceraldehyde-3-phosphate
- (d) Ribulose-1,5-bisphosphate**



Arrange the two following lists into their most appropriate pairs:

Column I	Column II
A - Antennae pigment molecules	I - Dioxygen (O_2) generation
B - Thylakoid membrane	II - Reduction of ferredoxin
C - Photosystem II	III - Electron transport chain
D - Photosystem I	IV - Absorption of light

(a) A-I, B-II, C-III, D-IV

(c) A-IV, B-III, C-II, D-I

(b) A-IV, B-III, C-I, D-II

(d) A-II, B-IV, C-I, D-II

Both photosynthesis and respiration require:

- (a) Chloroplasts
- (b) Sunlight
- (c) Mitochondria
- (d) Cytochromes**

Which one of the following is not true about the light reactions of photosynthesis?

- (a) NADPH is not produced in cyclic electrons transport in light reactions.
- (b) The flow of electrons from water to NADP in non-cyclic electron transport produces one ATP
- (c) Reactions of the two photosystems are needed for the reduction of NADP
- (d) P_{680} and P_{700} are the reaction centers of PS I and PS II respectively reactions**

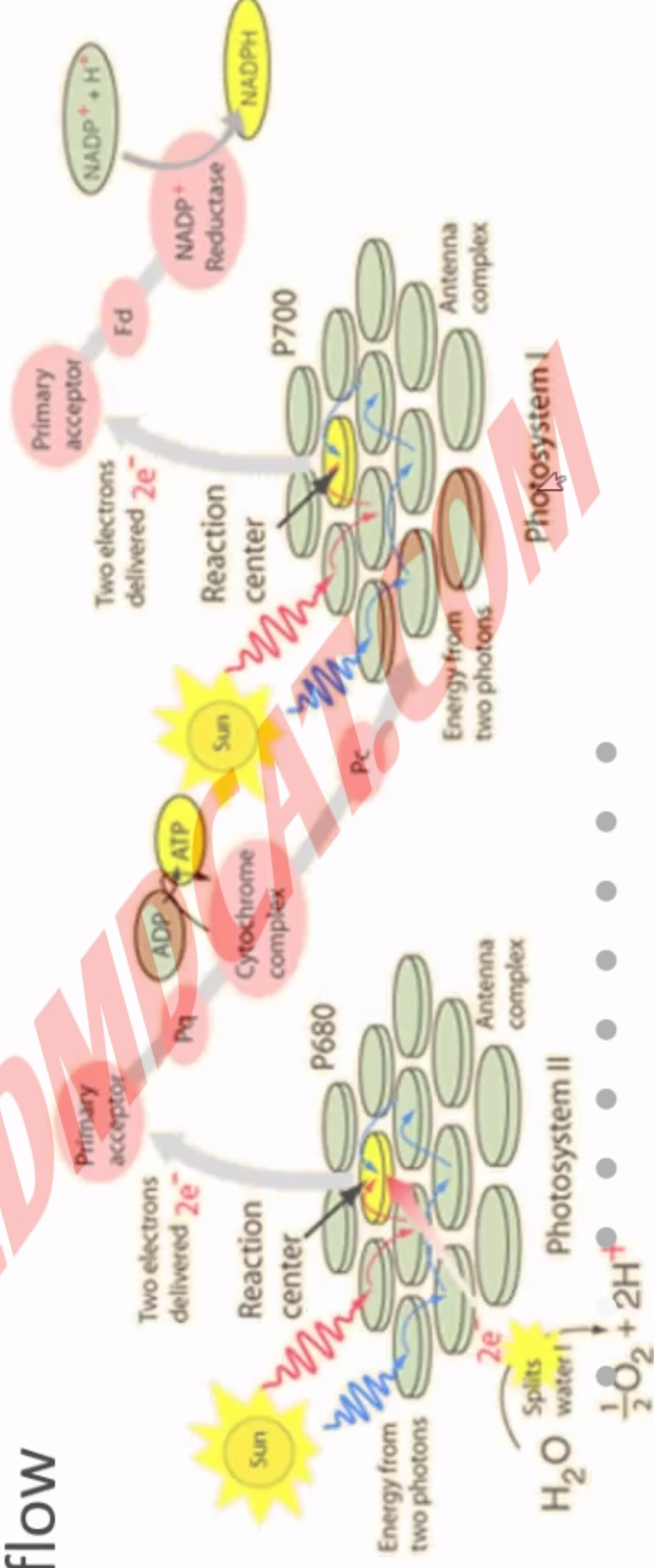
The pathway that will produce oxygen during photosynthesis is:

(a) Krebs cycle

(b) Non-cyclic electron flow

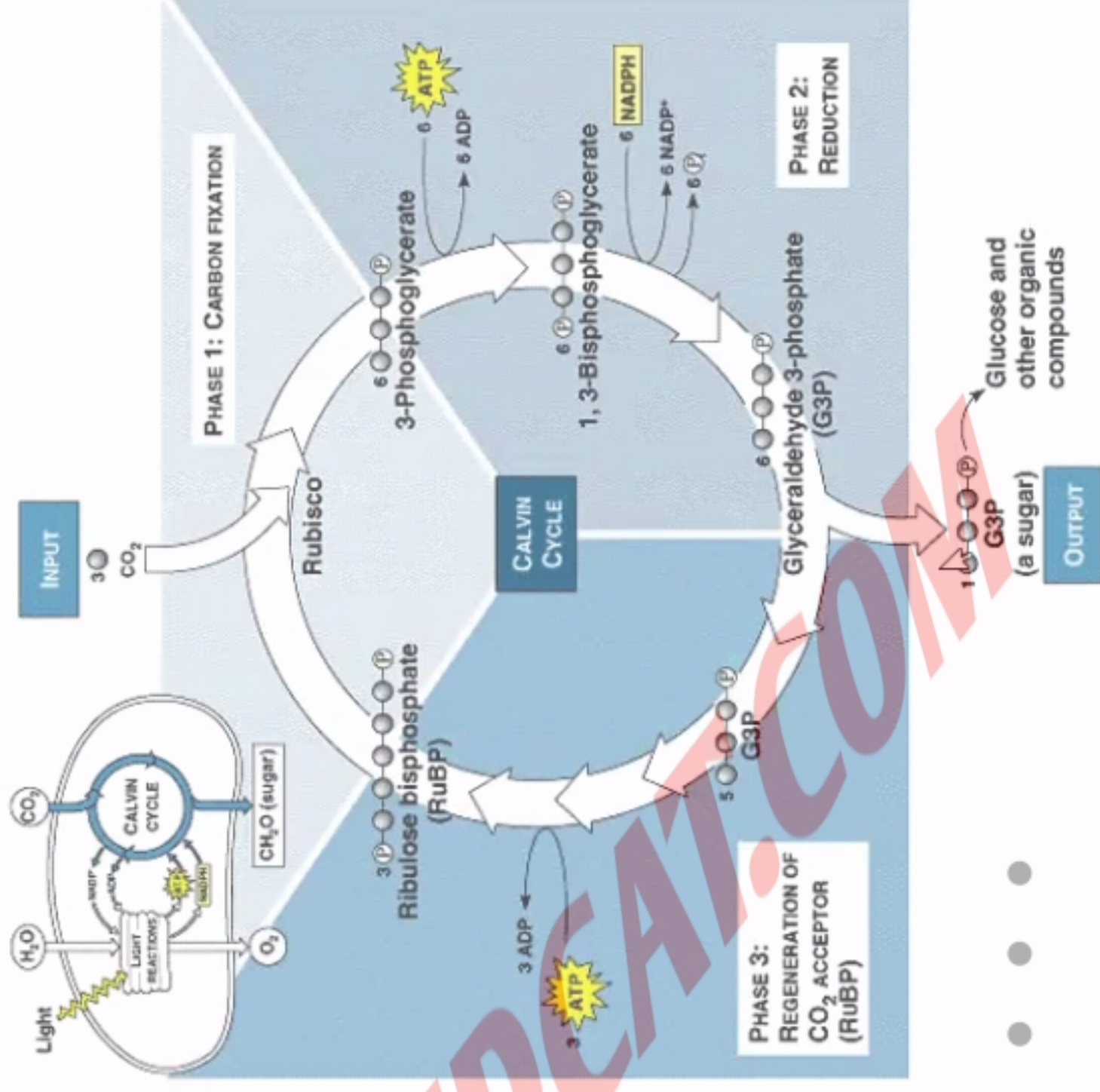
(c) Light-independent reactions

(d) Cyclic electron flow



Calvin cycle consists of how many phases?

- (a) 1
- (b) 2
- (c) 3
- (d) 4

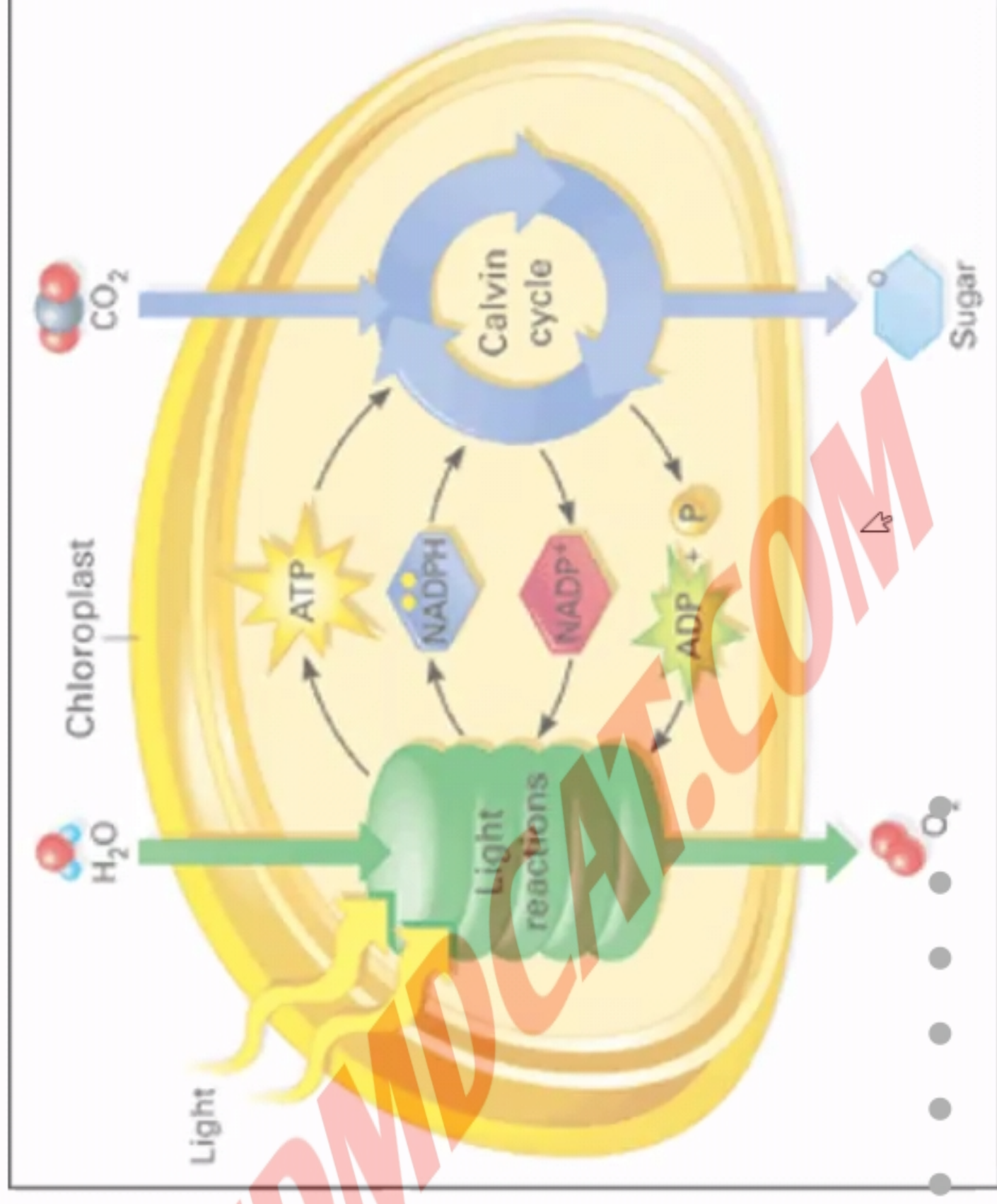


3-Phosphoglycerate is formed during _____ phase of C_3 cycle:

- (a) Preparatory
- (b) Oxidative
- (c) Reduction
- (d) Carbon fixation**

Where does the Calvin Cycle occur?

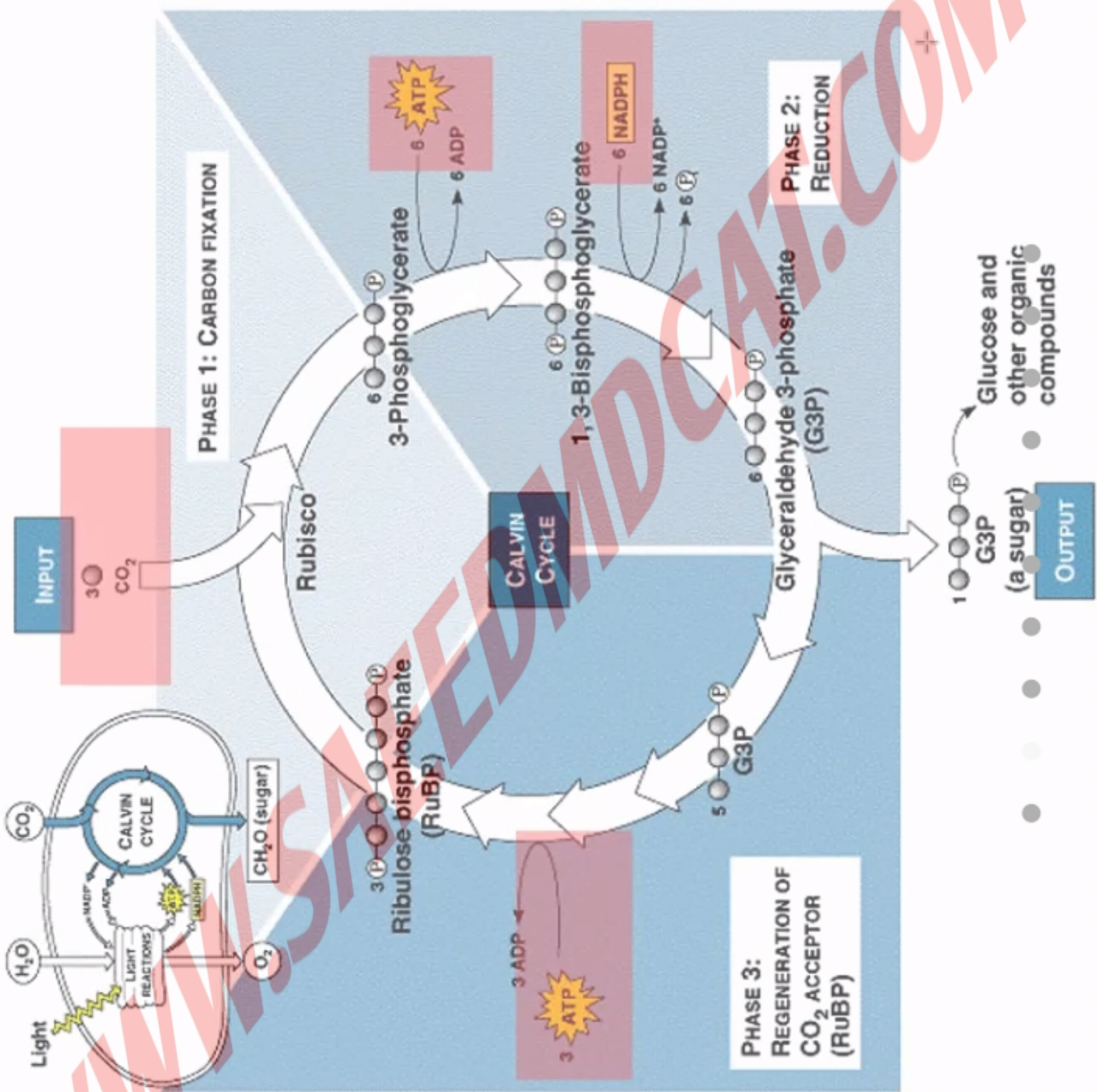
- (a) Thylakoid
- (b) Stroma**
- (c) Lumen
- (d) Mitochondria



Which of the following is not a reactant of the Calvin Cycle?

- (a) NADPH
- (b) ATP
- (c) Oxygen**
- (d) Carbon dioxide





When carbon first enters the Calvin cycle, what molecule does it combine with?

- (a) 3PG
- (b) G_3P
- (c) RuBP**
- (d) ATP

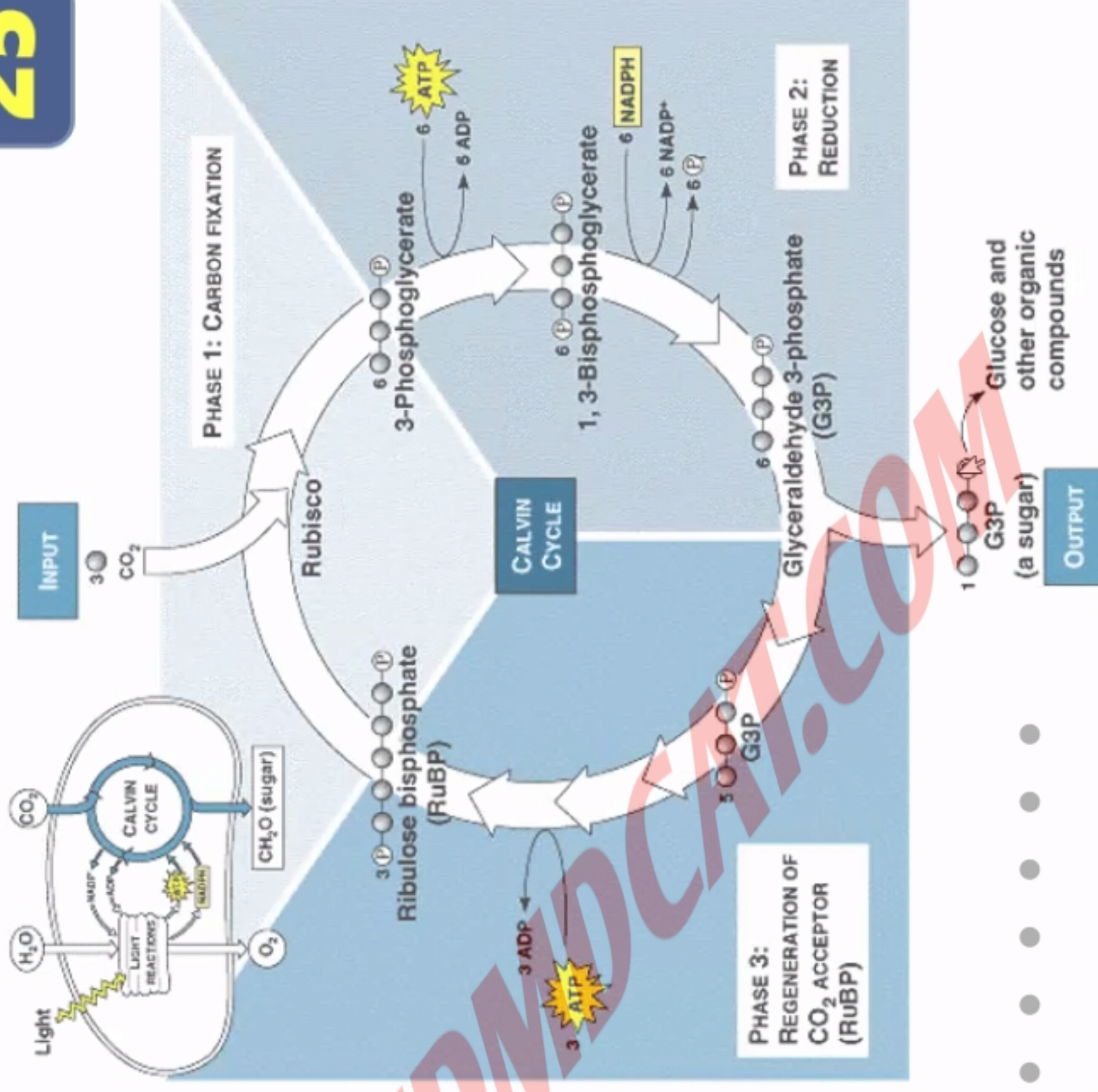
Calvin cycle is involved in the:

(a) **Synthesis of carbohydrates**

(b) Synthesis of NADPH

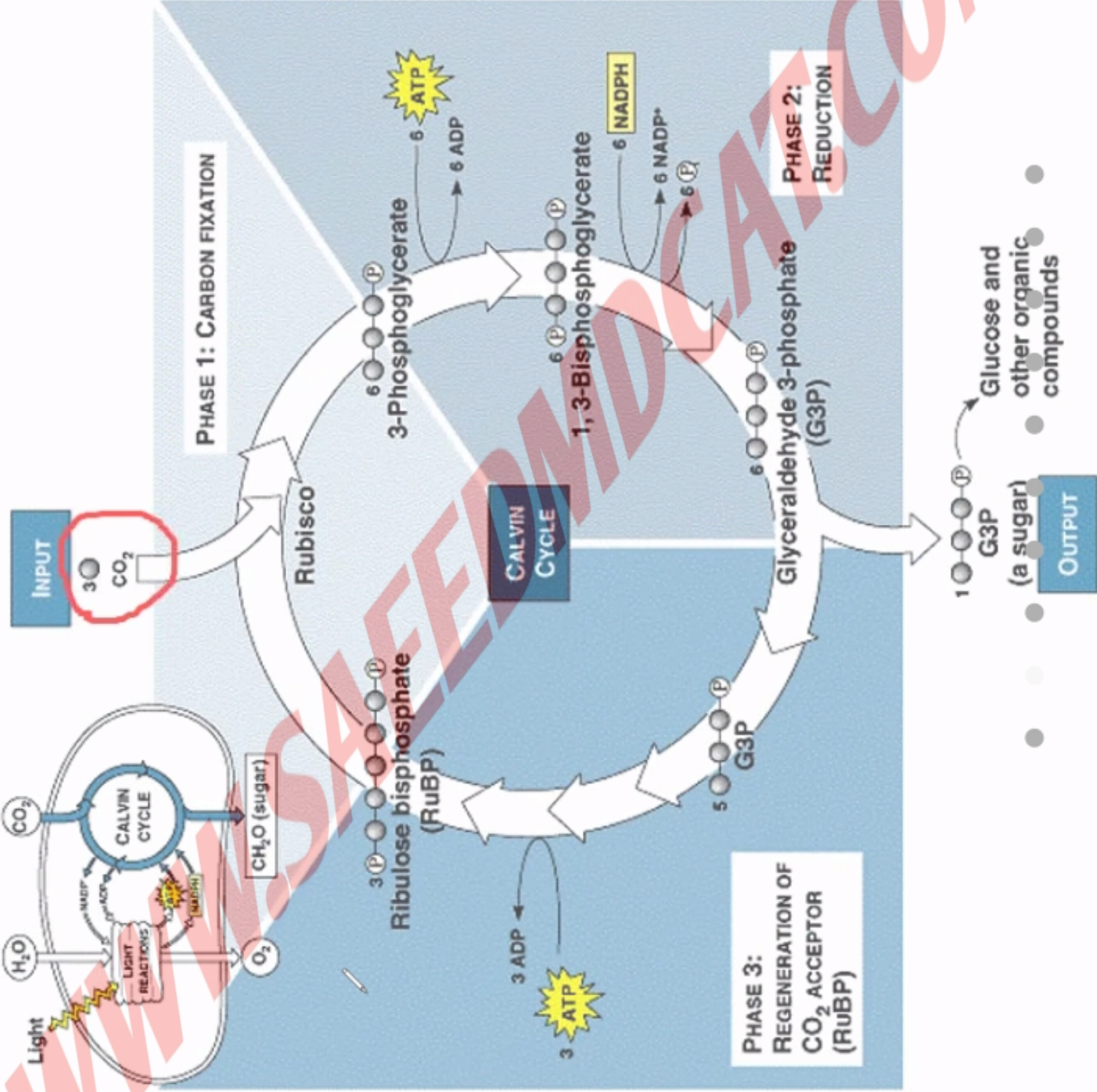
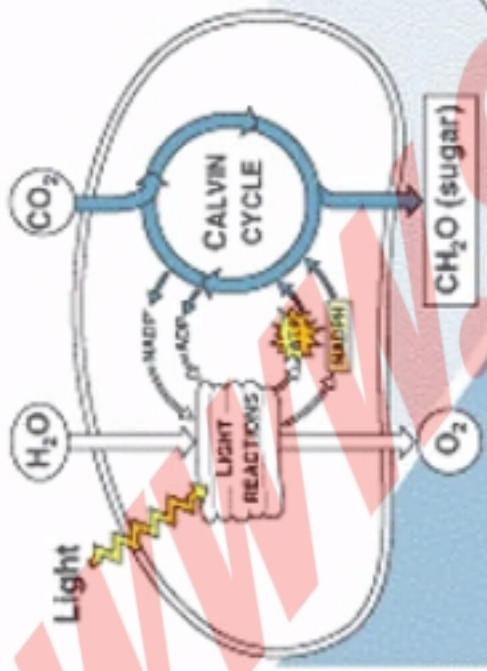
(c) Synthesis of ATP

(d) Hydrolysis of water



How many molecules of 3-phosphoglycerate is synthesized from the reaction between 6CO_2 and 6RuBp?

- (a) 3
- (b) 6
- (c) 12**
- (d) 18



How many ATP and NADPH molecules are used in the reduction phase to convert 3-phosphoglycerate to glyceraldehyde-3-phosphate?

(a) 6 ATP & 6 NADPH

(b) 6 ATP only

(c) 12 ATP & 12 NADPH

(d) 12 NADPH only



How many glyceraldehyde-3-phosphates are required to synthesize one glucose molecule?

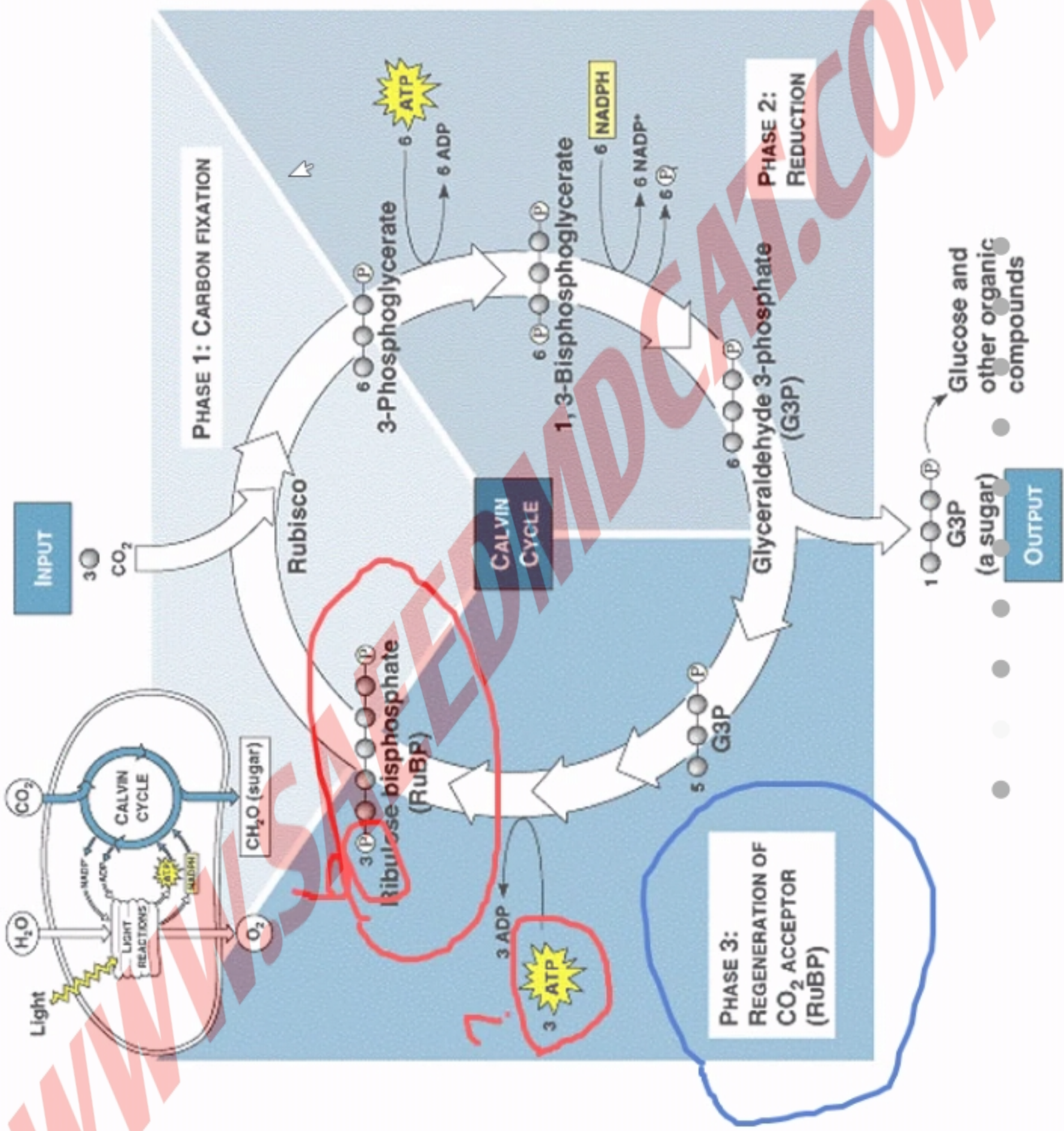
- (a) 2
- (b) 3
- (c) 6
- (d) 12

C₃ cycle involves all the steps except:

- (a) Reduction
- (b) Carbon fixation
- (c) ATP synthesis**
- (d) Regeneration of RuBP

How many ATP and NADPH are used for the regeneration of 6RuBP molecules?

- (a) 12ATP and 6NADPH
(b) 12ATP only
(c) 6ATP and 6NADPH
(d) 6ATP only



The initial CO_2 acceptor in C_3 cycle is:

(a) 3-Phosphoglycerate

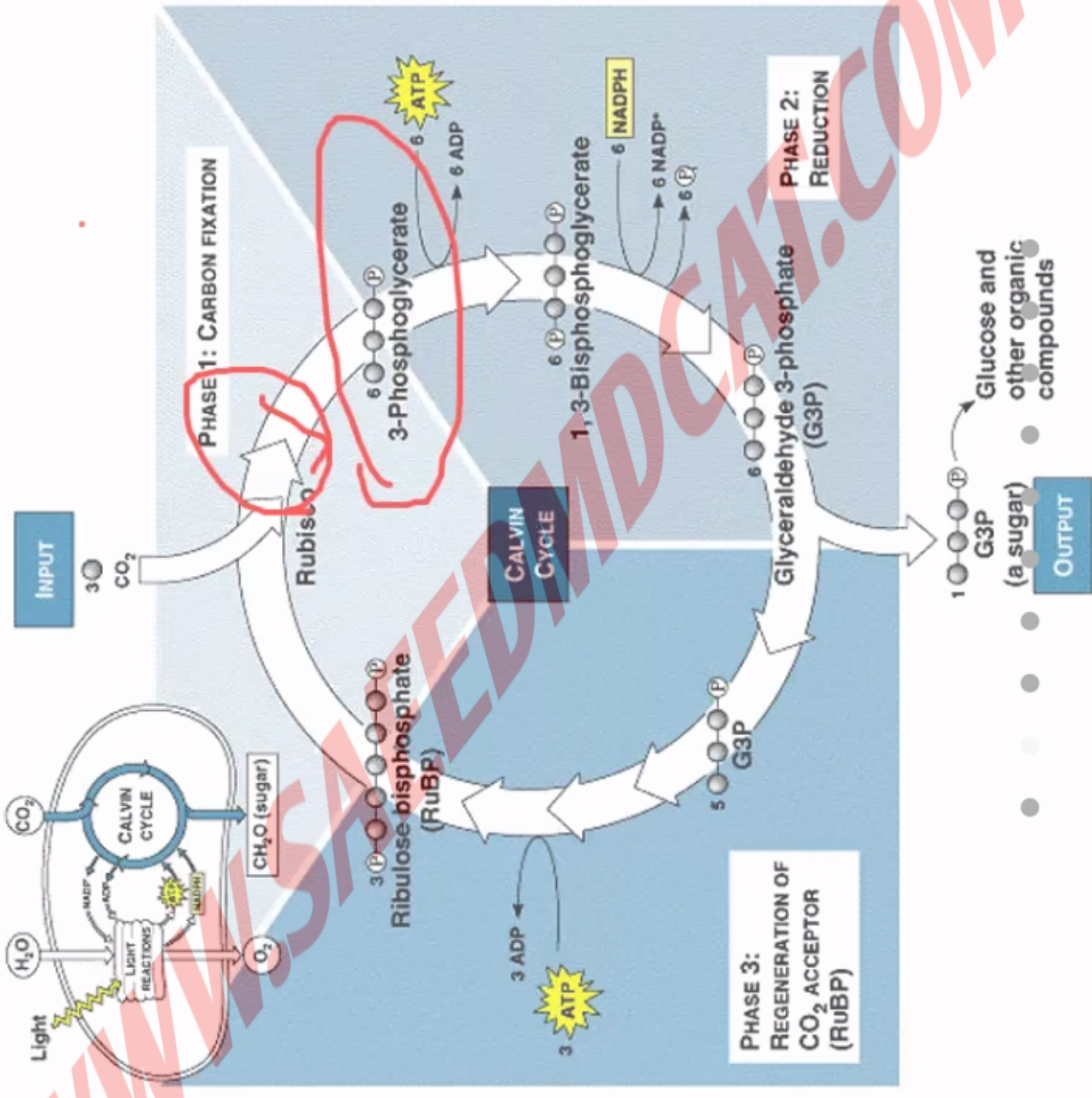
(b) RuBP

(c) Rubisco

(d) G_3P

The unstable 6-carbon compound in Calvin cycle breaks down into:

- (a) **Two 3-carbon compounds**
- (b) Three 2-carbon compounds
- (c) Six 1-carbon compounds
- (d) Six 3-carbon compounds



ATPs produced in each Calvin cycle are:

- (a) 0
- (b) 1
- (c) 3
- (d) 6

For the formation on one ATP and one NADPH, the Z-scheme will

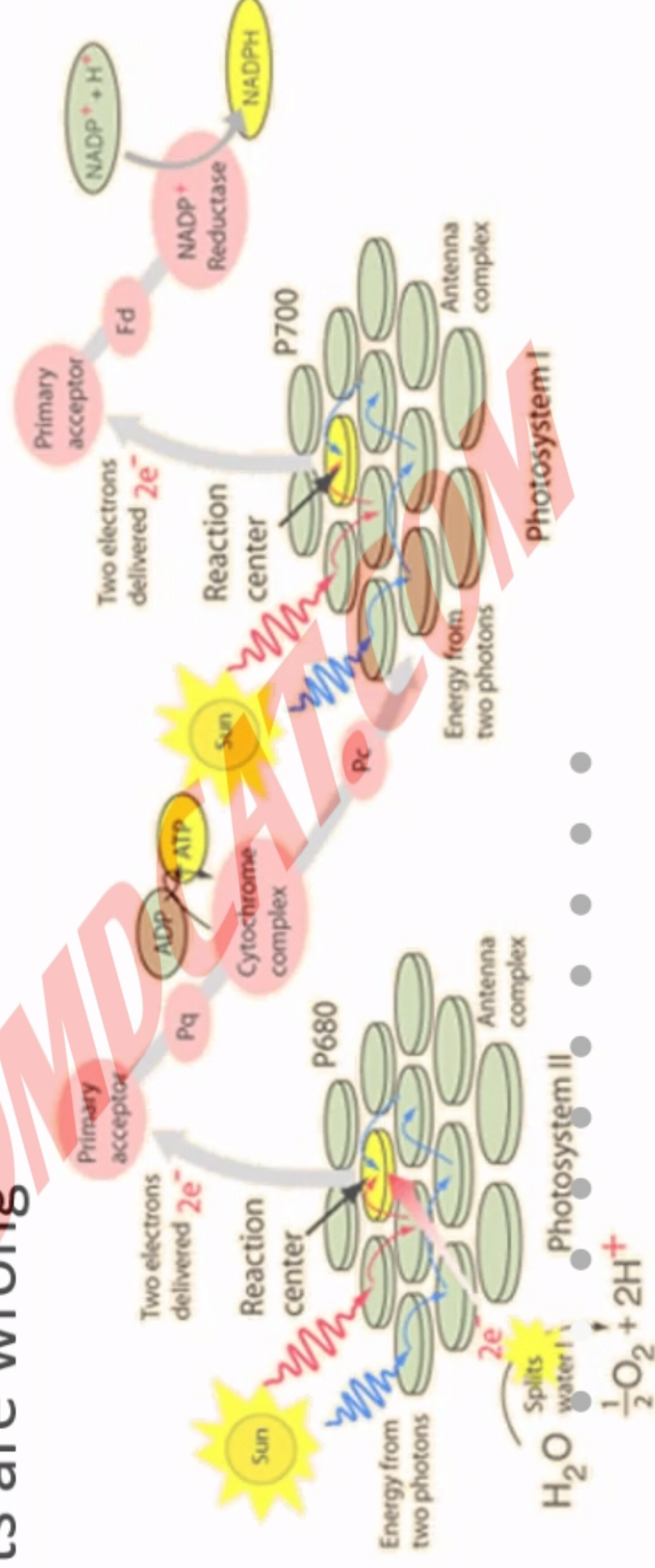
run:

- (a) 1 time
- (b) 2 times
- (c) 3 times
- (d) 6 times



Choose the wrong statement:

- (a) PS-I involves in light reactions first and PS-II involves later on
- (b) PS-I absorbs photons
- (c) Oxygen is not liberated in PS-I
- (d) All the statements are wrong



How many G_3P molecules are yielded during one Calvin cycle?

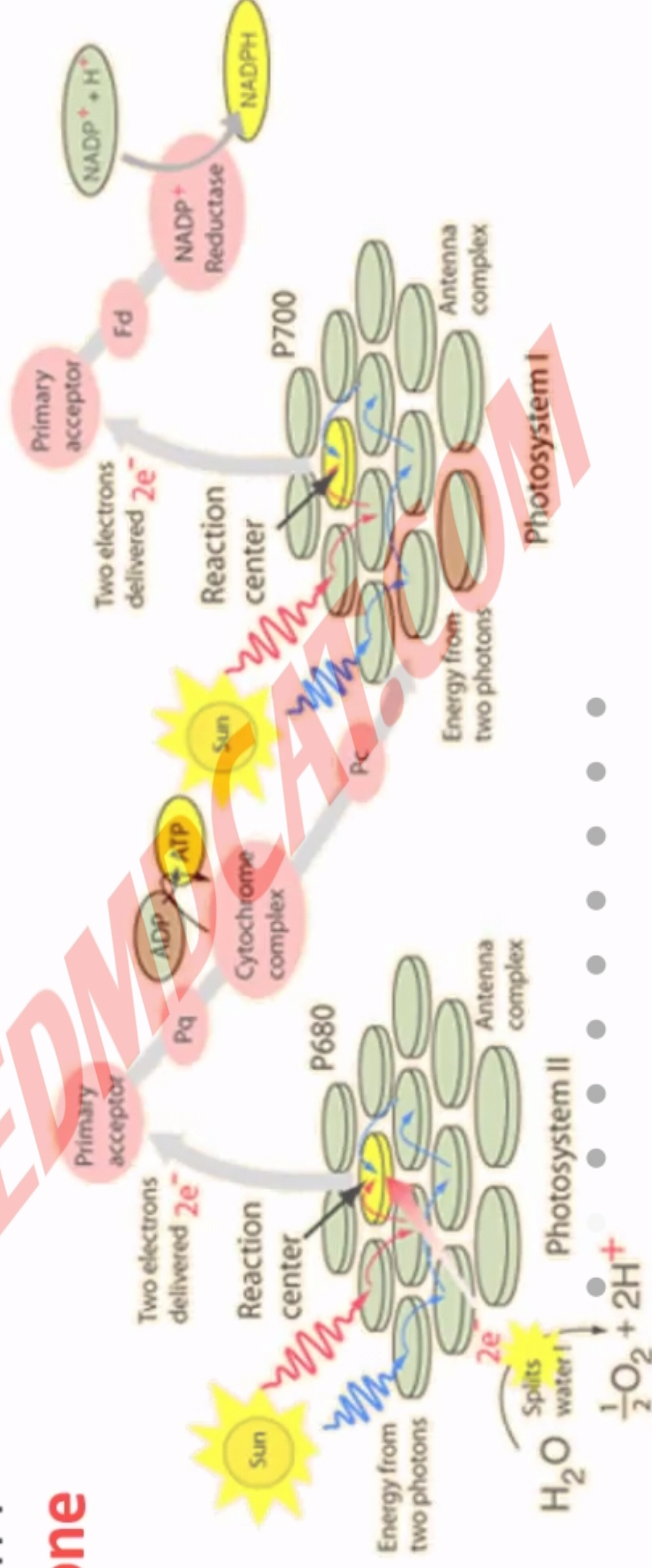
- (a) 1
- (b) 2
- (c) 5
- (d) 6

How many CO_2 molecules are yielded during one Calvin cycle?

- (a) 0
- (b) 1
- (c) 3
- (d) 6

All of the following are involved in both cyclic and non-cyclic photophosphorylation except:

- (a) Plastocyanin
- (b) Photosystem I
- (c) Plastoquinone**
- (d) Ferredoxin



During chemiosmosis of photosynthesis, the pumping of protons is:

- (a) Across outer membrane of chloroplast
- (b) Across inner membrane of chloroplast

(c) From stroma to thylakoid lumen

- (d) From thylakoid lumen to stroma



The pathway that will produce oxygen during photosynthesis is:

(a) Electron transport pathway

(b) Non-cyclic electron pathway

(c) Light-independent reactions

(d) Cyclic electron pathway

